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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,725	02/04/2004	Larrie A. Deardurff	200209310-1	5630

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EXAMINER

MARTIN, LAURA E

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/772,725	<b>Applicant(s)</b> DEARDURFF ET AL.	
	<b>Examiner</b> Laura E. Martin	<b>Art Unit</b> 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>02/04/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Deardurff et al. (US 6494942).

Deardurff et al. teaches a printing system comprising an inkjet ink having a boronic acid dye (column 4, lines 3-10) and a coated print medium (column 10, line 7; table 1). Deardurff et al. also teaches the printing system wherein a boronic acid dye comprises a boric acid group or boronic acid group (column 4, lines 3-10) and a dye selected from the group consisting of azo, triphenylmethane, anthraquinone, methane, xanthine, oxazine, thiazine, azine, thiazole, quinolinone, aminoketone, nitro, nitroso, phthalocyanine, acridine, indamine, and indophenol (column 2, lines 59-64).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deardurff et al. (US 6494942) in view of Riou et al. (US 4877686).

Deardurff et al. teaches the printing system of claim 1; however, it does not disclose a coating layer on the coated print medium comprising a polyhydroxylated material that comprises a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound positioned on the same side of the polyhydroxylated compound or the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch, and wherein the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups.

Riou et al. teaches a coating layer on the coated print medium comprising a polyhydroxylated material that comprises a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound positioned on the same side of the polyhydroxylated compound (column 3, lines 45-53), wherein the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch (column 3, lines 50-53), and wherein the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups (column 3, lines 62-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printing system of Deardurff et al. with the polyhydroxylated material of Riou et al. in order to create a smooth printed image.

Claims 6, 7, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deardurff et al. (US 6494942) and Riou et al. (US 4877686), and further in view of Nakagawa et al. (US 2004/0125169).

Deardurff et al. and Riou et al. teach the printing system of claims 4 and 9; however, neither discloses at least two hydroxyl groups are positioned on adjacent atoms and on non-adjacent atoms; the at least one hydroxyl group on each of the at least two hydroxylate compounds is positioned on the same side of the polyhydroxylated material; and wherein the hydroxylated compound comprises silica or a modified silica.

Nakagawa et al. teaches at least two hydroxyl groups are positioned on adjacent atoms and on non-adjacent atoms [0056]; the at least one hydroxyl group on each of the at least two hydroxylate compounds is positioned on the same side of the polyhydroxylated material [0056]; and wherein the hydroxylated compound comprises silica or a modified silica [0056].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the printing system of Deardurff et al. as modified with the disclosure of Nakagawa et al. in order to create a smooth printed image.

Claims 12, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deardurff et al. (US 6494942) in view of Nigam et al. (US 5973025).

Deardurff et al. teaches a method of reducing dye migration on a print medium (column 1, lines 49-55) and a printed image having improved permanence comprising:

Art Unit: 2853

providing a print medium having a coating layer (column 10, line 7, table 1); applying an inkjet ink comprising a boronic acid dye (column 4, lines 3-10) to the print medium.

Deardurff et al. also teaches the boronic acid dye comprises a boric acid group or boronic acid group (column 4, lines 3-10) and a dye selected from the group consisting of azo, triphenylmethane, anthraquinone, methane, xanthine, oxazine, thiazine, azine, thiazole, quinolinone, aminoketone, nitro, nitroso, phthalocyanine, acridine, indamine, and indophenol (column 2, lines 59-64).

Deardurff et al. does not teach forming a covalent bond between the boronic acid dye and the coating layer.

Nigam et al. teaches forming a covalent bond between the boric acid and the coating layer.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the a method of reducing dye migration on a print medium and a printed image having improved permanence with the covalent bond of Nigam et al. in order to provide a stronger printed image.

Claims 13-15, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deardurff et al. (US 6494942) and Nigam et al. (US 5973025) in further view of Riou et al. (US 4877686).

Deardurff et al. and Nigam et al. teach the method of reducing dye migration on a print medium and a printed image having improved permanence with the covalent bond of claims 12 and 18; however, neither teaches a coating layer on the coated print

Art Unit: 2853

medium comprising a polyhydroxylated material that comprises a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound positioned on the same side of the polyhydroxylated compound or the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch, and wherein the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups.

Riou et al. teaches a coating layer on the coated print medium comprising a polyhydroxylated material that comprises a polyhydroxylated compound having at least two hydroxyl groups on one molecule of the polyhydroxylated compound positioned on the same side of the polyhydroxylated compound (column 3, lines 45-53), wherein the polyhydroxylated compound is selected from the group consisting of polyvinyl alcohol, cellulose, a sugar, and a starch (column 3, lines 50-53), and wherein the polyhydroxylated material comprises at least two hydroxylated compounds each hydroxylated compound having at least two hydroxyl groups (column 3, lines 62-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the a method of reducing dye migration on a print medium and a printed image having improved permanence with the covalent bond as modified in order to create a stable image with less bleeding.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deardurff et al. (US 6494942) and Nigam et al. (US 5973025) in further view of Nakagawa et al. (US 2004/0125169).

Deardurff et al. teaches a boronic acid dye and a coating layer comprising, and Nigam et al. teaches forming a covalent bond between boric acid and a coating layer; however, neither teach at least two hydroxyl groups in the polyhydroxylated compound or hydroxyl group in the at least two hydroxylated compounds.

Nakagawa et al. teaches at least two hydroxyl groups in the polyhydroxylated compound or hydroxyl group in the at least two hydroxylated compounds [0056].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Deardurff et al. as modified in order to create a stable image with improved adhesion to the paper.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura E. Martin

  
2/17/06  
**MANISH S. SHAH**  
**PRIMARY EXAMINER**